

When traffic is to be maintained, permit one-way traffic on the untreated portion of the roadbed. As soon as the bituminous material has been absorbed by the surface and will not pick up, transfer traffic to the treated portion, and prime the remaining width of the section.

Do not apply succeeding applications of bituminous materials or other courses until after sufficient time has elapsed to allow both proper penetration and hardening of the prime coat.

- (e) **Application of Blotter Material.** If, after the application of the prime coat, the bituminous material fails to penetrate within the time specified and the roadway must be used by traffic, blotter material shall be spread in the amounts required to absorb any excess bituminous material.

#### **408.05. METHOD OF MEASUREMENT.**

*Prime coat* will be measured by the gallon ( liter) of residual asphalt. Blotter material will not be measured for payment.

#### **408.06. BASIS OF PAYMENT.**

The accepted quantities, measured as provided above, will be paid for at the contract unit price as follows:

PRIME COAT ..... GALLON (LITER)

Such payment shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

## **SECTION 410 MICRO SURFACING**

### **410.01. DESCRIPTION.**

This work shall consist of the application of micro surfacing material to an existing pavement surface in lifts 1 inch ( 25 mm) thick or less. The micro surfacing shall be a mixture of polymer-modified emulsified asphalt, mineral aggregate, mineral filler, water, and other additives—all properly proportioned, mixed, and spread on the surface in accordance with the plans and specifications.

### **410.02. MATERIALS.**

Materials shall meet the requirements of Section 707.

### **410.03. EQUIPMENT.**

The material shall be mixed by a self-propelled Micro Surfacing machine which shall be a continuous-flow mixing unit; this unit shall accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, and water to a revolving multi-blade mixer, and then discharge the thoroughly-mixed product on a continuous-flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, and water to maintain an adequate supply to the proportioning devices. The machine shall also be equipped with self-loading devices which provide for the loading of all materials while continuing to lay Micro Surfacing, thereby eliminating unnecessary construction joints. The machine shall be equipped with opposite side driving stations to optimize longitudinal alignment. The machine shall be equipped to allow the mix operator to have full hydrostatic control of the forward

and reverse speed during application of the micro surfacing material. The self-loading devices, opposite side driving stations, and forward and reverse speed controls shall be the original, manufacturer-designed equipment.

Provide individual volume or weight controls for proportioning each material to be added to the mix. Calibrate and properly mark each material control device.

The aggregate feed to the mixer shall be equipped with a revolution counter or similar device so the amount of aggregate used may be determined at any time.

The emulsion pump shall be the positive displacement type and shall be equipped with a revolution counter or similar device so that the amount of emulsion used may be determined at any time.

The mixing machine shall be equipped with a water pressure system and nozzle type spray bar to provide a water spray immediately ahead of and outside the spreader box. It shall also be equipped with an approved feeder that will provide a uniform, positive, accurately metered, predetermined amount of the specified mineral filler at the same time and location that the aggregate is fed.

When construction is being performed under traffic, all equipment, including loading vehicles and supply trucks, will be required to operate in a single lane on which micro surfacing is being applied. The Contractor's equipment for Micro Surfacing shall be operated in such a manner which will permit traffic to move safely and expeditiously through and around the work area.

If the mineral aggregates are stored or stockpiled, handle them in such a manner as to prevent segregation, mixing of the various materials or sizes, and contamination with foreign materials. The grading of aggregates proposed for use and as supplied to the mixing plant shall be uniform. Furnish suitable equipment of acceptable size to work the stockpiles and prevent segregation of the aggregates. Screen and weigh the mineral aggregate at the stockpile prior to jobsite delivery. Screens and scales shall be approved by the Engineer.

Keep all equipment used in the storage and handling of asphaltic material in a clean condition at all times, and operate it in such a manner that there will be no contamination with foreign matter.

#### 410.04. CONSTRUCTION METHODS.

- (a) **Weather Limitations.** Spread the material only when the atmospheric temperature is at least 50°F (10°C) or above in the shade and 4 feet (1.2 m) above the ground away from any artificial heat source, and the weather is not foggy or rainy.
- (b) **Surface Preparation.** Thoroughly clean area to be Micro Surfaced of all vegetation, loose aggregate, and soil. Apply water used in pre-wetting the surface at a rate to dampen the entire surface without any free-flowing water ahead of the spreader box.
- (c) **Test Panel.** Prior to the application of the micro surfacing mixture, place a test panel, at a location established by the Engineer, to demonstrate the compatibility of the modified emulsion and the mineral aggregate under field conditions. This test panel shall also be used to demonstrate the following:

Mix uniformity; compliance of the mix to the requirements for proportioning the asphalt, mineral filler, and mineral aggregate; and adequate compliance with performance requirements for set, cure, stability, and conformance to the typical section. From this test panel, it will be determined by the Engineer whether or not the mix is acceptable.

- (d) **Leveling Course.** When designated on the Plans or in the Contract or deemed necessary by the Engineer, apply a leveling course. Adequately cure the leveling course as approved by the Engineer before the final surface course is placed.

At the direction of the Engineer, before the final surface course is placed, preliminary micro surfacing material may be required to fill ruts, utility cuts, depressions in the existing surface, etc. Ruts may be filled independently with a rut filling spreader box either 5 or 6 feet (1.5 or 1.8 m) in width to fill the rut or with a full-width scratch coat pass as directed by the Engineer.

- (e) **Spreading.** Spread the Micro Surfacing mixture uniformly by means of a mechanical-type squeegee box, equipped with augers to spread the materials uniformly throughout the box. Flexible seals shall be in contact with the road to prevent loss of mixture from the box. The rear flexible seal shall act as a strike-off and shall be adjustable. The spreader shall be maintained to prevent the loss of the Micro Surfacing product in surfacing super-elevated curves. The mixture shall be spread to fill all cracks and minor surface irregularities and leave a uniform application of fine aggregate and asphalt on the surface.

The seam, where two spreads join, shall be neat appearing and uniform.

*NOTE: If, in the opinion of the Engineer, the seam is rough enough to cause a noticeable effect on the steering of an automobile, the seam shall be removed and a new Micro Surfacing patch applied. Patching shall be machine-applied patches with a full-width spreader box.*

Operate the self-loading devices in such a manner as to eliminate unnecessary construction joints, and avoid overruns into the gutter. Remove all excess material from ends of each job site immediately.

- (f) **Curing and Maintaining Traffic.** Provide adequate means to protect the Micro Surfacing from damage by traffic until the mixture has cured sufficiently so that it will not adhere to or be picked up by the tires of vehicles.

*NOTE: Any damage done by traffic to the Micro Surfacing shall be repaired by the Contractor and not measured for payment.*

Suspend application of the surfacing materials early enough each day to permit traffic to safely travel over the completed work before dark. Work required or materials used in maintaining of traffic will not be paid for directly but shall be considered subsidiary to other items of work and shall be the responsibility of the Contractor.

#### 410.05. METHOD OF MEASUREMENT.

*Mineral aggregate* will be measured by the dry weight ton (metric ton) including mineral filler.

*Polymer-Modified Emulsified asphalt* will be measured by the gallon (liter) or ton (metric ton) of residual asphalt cement.